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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,236	12/15/2003	Roger R. Lesieur	C-2460 DIV	8626
7590	12/01/2006		EXAMINER	
William W. Jones Patent Counsel 6 Juniper Lan Madison, CT 06443			HANDAL, KAITY V	
			ART UNIT	PAPER NUMBER
			1764	

DATE MAILED: 12/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/734,236

Applicant(s)

LESIEUR ET AL.

Examiner

Kaity Handal

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Examiner agrees with arguments made regarding the finality of the previous Office Action 10/18/2006, and therefore the finality of the previous Office Action has been withdrawn pursuant to 37 CFR 1.114.

### ***Claims Analysis***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. It is noted that claims 6-10 recite a "system". As Applicant's system appears to most correspond to a "machine" and therefore would correspond to statutory subject matter under 35 USC 101. Therefore, for the purposes of examination, applicant's system will be treated as an apparatus and the appropriate principles for interpreting claims for that particular category of invention have been applied.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 6 stands rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Again, as applicant generally remarks that the

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apparatus of the prior art is incapable of producing the product to have a sulfur content of 0.05 ppm, and that the office position is that there are no apparent structural differences between applicant's claim 6 with respect to Setzer et al, it then follows that there are structural features which are not claimed or otherwise provided for in applicant's claim 6. Therefore, this rejection, under 112, P2, is therefore being maintained as a structural limitation which would provide the capability of producing reduced sulfur levels in comparison with the prior art apparatus are not apparently pointed out.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Setzer (US 3,485,746) and further in view of Hydrocarbon Chemistry (George A Olah, 1995).

With respect to claims 6-10, Setzer teaches an apparatus (figure 1) for desulfurizing a fuel stream (illustrated) so as to convert a fuel stream into a low sulfur content fuel (col. 4, lines 59-73), which low sulfur content fuel is suitable for use in a fuel processing section in a fuel cell power plant (col. 1, lines 20-25), said system comprising: a) a nickel reactant desulfurization station/reactant adsorbent

bed which is operative to convert sulfur contained in organic sulfur compounds contained in the fuel stream (col. 4, lines 59-73); b) means/pump (as illustrated) for introducing a gasoline or diesel fuel stream into said nickel reactant desulfurization station/reactant adsorbent bed, and c) a supply/(from reformer) of a hydrogen ( $H_2$ ) additive and means/pipeline (as illustrated) connecting said ( $H_2$ ) additive supply/reformer to said fuel stream (as illustrated).

Regarding limitations recited in claim 6 which are directed to a manner of operating disclosed device (amount of  $H_2$  additive supplied), neither the manner of operating a disclosed device nor material or article worked upon (such as the type of fuel) further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, process limitations do not have patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

The reference does not disclose wherein the  $H_2$  additive is derived from a container of  $H_2$  in the fuel processing section of the fuel cell power plant, from recycled reformed fuel gas from a selective oxidizer in the fuel processing section of the fuel cell power plant, or from an electrolysis cell in the fuel processing section of the fuel cell power plant which converts water to  $H_2$  and  $O_2$ . The Olah reference discloses the production of hydrogen in a separate converter in fuel cell systems (page 19, lines 1-15).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the process of Setzer to utilize the converter in the fuel cell systems of Olah in order to produce hydrogen and it would have been obvious to utilize a system wherein the H<sub>2</sub> additive is derived from a container of H<sub>2</sub> in the fuel processing section of the fuel cell power plant, from recycled reformed fuel gas from a selective oxidizer in the fuel processing section of the fuel cell power plant, or from an electrolysis cell in the fuel processing section of the fuel cell power plant which converts water to H<sub>2</sub> and O<sub>2</sub> because the Setzer reference generally discloses the use of hydrogen additive in a desulfurization process and the source of the hydrogen production is not material to the success of the process.

### ***Response to Arguments***

#### **Specification**

Objection is made to the Abstract is withdrawn by the examiner due to applicant's amendment.

#### **Claims Analysis**

Examiner reiterates that for examination purposes, applicants "system claims" are interpreted as being to a machine or apparatus including statements of intended results pertaining to the desulfurization capability of that apparatus and, as such, that do not structurally alter applicant's claimed invention.

Contrary to Applicant's remarks on page of the last response, Examiner has not stated that a system is a statutory class of invention. However, Applicant's claim to a

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system is statutory inasmuch as it is interpreted to one of the statutory classes of invention permitted under 35 USC 101 as reproduced at the beginning of this action, in this to case a machine or apparatus. Additionally, the characterization of applicant's invention as a system, does not make it both process/machine. This appears to be supported by the exclusive nature of 35 USC101, which allows claims to a single statutory class of invention. This is further supported by IPXL Holdings LLC v. Amazon.com Inc. Therefore, weight will be given to only structural (apparatus, machine) limitations or process steps that serve to further define a structure.

Applicant's citations as reproduced in the paragraph bridging pages 4 and 5 support relate to the permissibility of process limitations or statements of intended results to a machine or apparatus claim. Examiner does not refute this. However, a claim containing a "recitation with respect to the manner in which a claimed system or apparatus is intended to be employed does not differentiate the claimed system or apparatus from a prior art apparatus" if the prior art apparatus shows all of the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987) Furthermore, "expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim." *Ex parte Thibault*, 164 USPQ 666,667 (Bd. App. 1969). Thus, the "inclusion of material or article worked upon does not impart patentability to the claims." *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 (USPQ 458, 459 (CCPA 1963)).

Prior Art Rejection

The structural limitations as instantly claimed are indistinguishable over the structure of Setzer et al as explained above. Therefore, as there are no structural differences seen, the position is taken that the apparatus of Setzer et al is capable of producing a sulfur content of 0.05 ppm which in itself constitutes a process limitation.

The burden of demonstrating that Setzer's et al. is not capable of producing an effluent of 0.05 ppm sulfur falls on the applicant. The arguments of counsel cannot take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965). Objective evidence which must be factually supported by an appropriate affidavit or declaration to be of probative value includes evidence of unexpected results, commercial success, solution of a long-felt need, inoperability of the prior art, invention before the date of the reference, and allegations that the author(s) of the prior art derived the disclosed subject matter from the applicant. See, for example, *In re De Blauwe*, 736 F.2d 699, 705, 222 USPQ 191, 196 (Fed. Cir. 1984). See MPEP 716.01(c).

Regarding claims 7, 8 and 9, and 10, Applicant argues that Setzer et al does not suggest the derivation of hydrogen for use in its process from recycled reformed fuel gas from a selective oxidizer in the fuel cell power plant; and Setzer et al does not suggest the derivation of hydrogen for use in its process from an electrolysis cell; nor does Setzer et al suggest the derivation of hydrogen from a hydride bed. Examiner respectfully disagrees. The Setzer reference generally discloses the use of hydrogen



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additive in a desulfurization process (col. 3, lines 59-65) and the source of the hydrogen production is not material to the success of the process. However, per claim 7, the Olah reference was relied upon to teach the production of hydrogen in a separate converter in fuel cell systems (page 19, lines 1-15).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the process of Setzer to utilize the separate converter in the fuel cell systems of Olah. In addition, per claim 8, it would have been obvious to utilize a system wherein the H<sub>2</sub> additive is derived from a container of H<sub>2</sub> in the fuel processing section of the fuel cell power plant, from recycled reformed fuel gas from a selective oxidizer in the fuel processing section of the fuel cell power plant, , or from a hydride bed, or from an electrolysis cell in the fuel processing section of the fuel cell power plant which converts water to H<sub>2</sub> and O<sub>2</sub> because the Setzer reference generally discloses the use of hydrogen additive in a desulfurization process (col. 3, lines 59-65) and the source of the hydrogen production is not material to the success of the process.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaity Handal whose telephone number is (571) 272-8520. The examiner can normally be reached on M-F 8-5.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KH

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11/13/2006

  
Glenn Caldarola  
Supervisor, Patent Examiner  
Art Unit 1764